

WHAT IS CLAIMED IS:

1. An apparatus for creating an atmospheric mini-plasma comprising,
 - a. a supply of a support gas;
 - b. a supply of a reactive gas;
 - c. a plasma generating region in communication with said gas supplies;
 - d. said plasma generating region comprising a first gas inlet, a plasma chamber having an inner wall coupled to said gas inlet, and a plasma discharge opening coupled to said chamber;
 - e. a first planar electrode within said plasma chamber;
 - f. a second planar electrode within said plasma chamber, in parallel with said first planar electrode, said first and second planar electrodes used for applying a high voltage field for ionizing said support gas and said reactive gas at atmospheric pressure; and
 - g. a high voltage direct current power supply connected to said first and second planar electrodes.
2. The apparatus of claim 1 where said gas supplies are attached to a connector where said support gas and said reactive gas are mixed prior to entering into said plasma generating region.
3. The apparatus of claim 2 where said connector is selected from a group consisting of a T-connector or a Y-connector.
4. The apparatus of claim 1 where said reactive gas enters said plasma generating region through said first gas inlet and said support gas enters said plasma generating region through a second gas inlet providing a layer of support gas between said inner wall and said reactive gas.
5. The apparatus of claim 1 where said support gas is metered from said support gas supply by a first flowmeter, and said reactive gas is metered from said reactive gas supply by a second flowmeter.

6. The apparatus of claim 1 where said high voltage power supply comprises a direct current power source and a DC-DC converter.
7. The apparatus of claim 1 where said high voltage power supply comprises a direct current power source, a pulse generator connected to a switch, and a power transformer.
8. The apparatus of claim 6 where said direct current power source is a dry-cell battery.
9. The apparatus of claim 8 where said dry-cell battery is an alkaline battery.
10. The apparatus of claim 7 where said direct current power source is a dry-cell battery.
11. The apparatus of claim 10 where said dry-cell battery is an alkaline battery.
12. The apparatus of claim 1 where said support gas supply is selected from a group consisting of all inert gases.
13. The apparatus of claim 1 where said support gas supply is selected from the group consisting of helium, argon, nitrogen, oxygen, and air.
14. The apparatus of claim 1 where said reactive gas supply is selected from the group consisting of oxygen, nitrogen, chlorine, and fluorine.
15. The apparatus of claim 1 wherein said reactive gas supply is selected from the group consisting of gaseous compounds of oxygen, nitrogen, chlorine, and fluorine.
16. The apparatus of claim 1 where a plurality of said plasma generating regions in an array are in communication with said gas supplies.